



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/072,707

02/05/2002

Alain Houle

CISCP730

1909

54406

7590

12/28/2005

AKA CHAN LLP / CISCO
900 LAFAYETTE STREET
SUITE 710
SANTA CLARA, CA 95050

EXAMINER

KIM, DAVID S

ART UNIT

PAPER NUMBER

2633

DATE MAILED: 12/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/072,707	Applicant(s) HOULE ET AL.	
	Examiner David S. Kim	Art Unit 2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 9-14, 16, 18-25 and 27-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-14, 16, 18-25 and 27-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 March 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION**Drawings**

1. Applicant's response to the objection to the drawings in a previous Office Action (mailed on 21 September 2005) is noted and appreciated. Applicant filed a new Fig. 1 on 28 November 2005. This drawing replacement sheet is approved. Although a drawing objection to Fig. 4A was presented in the previous Office Action, the explanation was inadvertently omitted. Examiner objects to Fig. 4A since the labels "OC-48" and "OC-192" are not supported in the specification for the embodiment shown in Fig. 4A. That is, Fig. 4A shows particular data rates, OC-48 and OC-192, for the embodiment that applies error correction coding to multiple data signals. However, the portion of the specification that discusses this embodiment (p. 8, l. 20-22) does not disclose the particular data rates of OC-48 and OC-192. As a remedy, Examiner respectfully suggests removing these labels from Fig. 4A.

Claim Objections

2. Applicant's compliance with the objections to claim 24 in a previous Office Action (mailed on 21 September 2005) is noted and appreciated. Applicant's amendment entered with the filing of the RCE on 19 December 2005 obviates the previous objection to claim 24. Accordingly, this objection is withdrawn.

3. **Claims 9 and 33** are objected to because of the following informalities:

In claim 9, last line, "optical signal compensated for" is used where -- optical signal is compensated for -- may be intended.

In claim 33, line 1, "said method" is used where -- said apparatus -- may be intended.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. Applicant's response to the rejection of **claims 2-4, 9-14, 18-19, and 28-30** under 35 U.S.C. 112, first paragraph (written description), in a previous Office Action (mailed on 21 September 2005) is noted and appreciated. Applicant responded by amending claims 2, 9-10, 18-19, and 28-30. The previous rejection of claims 2-4, 9-14, 18-19, and 28-30 under 35 U.S.C. 112, first paragraph, was presented since the claim language disclosed the application of the **same** error correction coding **scheme** to **both** first and second data signals. This limitation was not supported in the original disclosure, so it constituted

Art Unit: 2633

new matter. Applicant's amendments to claims 2, 9-10, 18-19, and 28-30 obviates this previous rejection for claims 2-4, 18-19, and 28-30. However, independent claim 9 still discloses a limitation that is not part of the original disclosure. Thus, **claim 9 and its dependent claims 10-14 are still rejected** under 35 U.S.C. 112, first paragraph (written description). See below for further details.

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. **Claims 2-4, 10-12, 18-19, and 28-30** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Similar to the comments presented in a previous Office Action (Advisory Action mailed on 07 December 2005), Examiner finds that Applicant's amendments to claims 2, 10, 18-19, and 28-30 introduce **new matter**. In particular, notice that they introduce a **particular** coding scheme to a particular "first" signal in the embodiment of Applicant's invention that employs error correction coding on multiple data signals. Although Applicant's disclosure does introduce the use of a particular coding scheme (Reed-Solomon, G.975, G.709 in p. 9+) on a particular "first" signal (middle signal in Fig. 2), this usage of a **particular** coding scheme is **only disclosed** for an embodiment of Applicant's invention that employs error correction coding on **only one** data signal (embodiment in Fig. 2), **not multiple** data signals (embodiment in Figs. 4A-4B). Applicant's disclosure does not disclose the use of a **particular** coding scheme (such as Reed-Solomon coding, standard G.975 coding, or standard G.709 coding) in the embodiment of the invention that employs error correction coding on multiple data signals. Accordingly, as Applicant's amendments to claims 2, 10, 18-19, and 28-30 introduce these limitations that are not taught by Applicant's disclosure, these same amendments introduce new matter to claims 2-4, 10-12, 18-19, and 28-30.

7. **Claims 5, 13, 23, and 25** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described

Art Unit: 2633

in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 5, 13, 23, and 25 disclose that a first signal comprises an OC-48 signal and that a second signal comprises an OC-192 signal. Although Applicant's disclosure does teach the use of an OC-48 signal and an OC-192 signal (Figs. 1-2), this usage of particular OC data rates is **only disclosed** for an embodiment of Applicant's invention that employs error correction coding on **only one** data signal (embodiment in Fig. 2), **not multiple** data signals (embodiment in Figs. 4A-4B). Applicant's disclosure does not disclose the use of these **particular** OC data rates in the embodiment of the invention that employs error correction coding on multiple data signals. Accordingly, this limitation of using these **particular** OC data rates in the claimed environment of claims 5, 13, 23, and 25 (the embodiment of the invention that employs error correction coding on multiple data signals, i.e., Figs. 4A-4B) constitutes subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

8. **Claims 9-14** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In particular, notice the following limitation in claim 9:

"decoding said **first and second** recovered data signals in accordance with **an error correction coding scheme wherein** a lower signal to noise ratio of said second modulated optical signal [is] compensated for relative to said first modulated optical signal" (emphasis Examiner's).

This limitation discloses the use of **one** error correction coding scheme **for both** first and second recovered data signals **so that** a lower signal to noise ratio of said second modulated optical signal is compensated for relative to said first modulated optical signal, which is not supported by the specification (p. 8, last paragraph). That is, this limitation (**one** error correction coding scheme **for two** data signals compensating for a lower SNR of one signal relative to another signal) implies that **one** error

Art Unit: 2633

correction coding scheme provides **one** amount of coding gain when applied to a signal and a **different** amount of coding gain when applied to another signal. However, one of ordinary skill in the art would expect that **one** error correction coding scheme would provide the **same** general amount of coding gain to **both of these** signals. As Applicant's specification does not disclose how **one** error correction coding scheme provides such **different** relative amounts of coding gain to **both of these** signals, this contested limitation in claim 9 constitutes new matter. Thus, independent claim 9 and dependent claims 10-14, which depend on claim 9, contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. **Claims 1, 2, 5-7, 9-10, 13-14, 16, 18, 20-25, 27-28, and 31-33** are rejected under 35 U.S.C. 103(a) as being unpatentable over Swanson et al. (U.S. Patent No. 6,433,904 B1, hereinafter "Swanson").

(**claim 1**) Swanson discloses:

A method for transmitting a WDM signal:

Art Unit: 2633

modulating a first optical signal on a first wavelength with a first data signal having a first data rate to generate a first modulated optical signal having a first bandwidth (channel 1 in Fig. 3);

modulating a second optical signal on a second wavelength with a second data having a second data rate to generate a second modulated optical signal having a signal having a second bandwidth (channel 2 in Fig. 3), said second bandwidth being greater than said first bandwidth (example of channels with differing bandwidths in col. 6, l. 11-26) and said WDM signal comprising said first modulated optical signal and said second modulated optical signal.

Swanson does not expressly disclose:

applying error correction coding to said first and second data signals such that said second data signal experiences a greater coding gain than said first data signal.

Rather, Swanson discloses applying error correction coding (FEC encoder 40) to **one** of the data signals so that the error correction coded data signal experiences a greater coding gain than the other uncoded data signal. However, coding **multiple** data signals such that one coded data signal experiences a greater coding gain than another coded data signal is obvious within the teachings of Swanson. For example, consider the section "4. Channel Upgrades" on col. 6, l. 6+. It discusses the general procedure for upgrading channels. Swanson provides examples of upgrading from one data rate to another data rate (Fig. 3, col. 8, l. 2-9). However, Swanson does not limit these upgrading teachings to the specific data rates discussed in the examples. That is, Swanson employs a more general formula that applies to a variety of data rates and upgrade situations:

"[I]f the system was originally designed for a channel at rate R , and it is desired to utilize that channel at rate R' , then a code with coding gain of nominally $10 \cdot \log_{10} (R'/R)$ should be chosen" (col. 7, l. 66 – col. 8, l. 2).

Additionally, Swanson describes a variety of codes from which one could choose for implementing a channel upgrade: Reed-Solomon codes, BCH codes, block codes, convolutional codes, concatenated codes, SOVA with convolutional codes, etc. (col. 7, l. 1-57). These codes provide differing amounts of coding gain. Combined with Swanson's formula quoted above, Swanson's upgrading teachings include a variety of data rate upgrades. For example, a data rate upgrade by a factor of 4 corresponds to $10 \cdot \log_{10} (4/1) \sim 6$

Art Unit: 2633

dB coding gain, which could correspond to a Reed-Solomon code (col. 7, l. 10-12). A data rate upgrade by a factor of 16 corresponds to $10 \cdot \log_{10} (16/1) \sim 12$ dB coding gain, which could correspond to a concatenated code of a convolutional code and a block code, with SOVA on the convolutional code (col. 7, l. 34-50). Thus, Swanson's upgrading teachings suggest examples of channel upgrading other than the explicit examples of Swanson (Fig. 3, col. 8, l. 2-9).

Accordingly, it is clear that the limitation of "applying error correction coding to multiple data signals such that said one data signal experiences a greater coding gain than another data signal" is within the bounds of technical capability of Swanson. That is, one could reasonably expect to be able to implement this limitation according to the upgrading teachings of Swanson. However, the question remains, "Would it be obvious to do so?"

At the time the invention was made, yes, it would have been obvious to one of ordinary skill in the art to implement this limitation. One of ordinary skill in the art would have been motivated to do this to implement further upgrading of channels (col. 6, l. 8). That is, consider a system that already has an upgraded channel according to Swanson's upgrading teachings, e.g., a system, similar to Fig. 3, with a channel that has been upgraded by a factor of 4, similar to col. 8, l. 2-9. If one desires to further upgrade another channel to increase channel capacity, e.g., by a factor of 16, one would simply apply Swanson's upgrading teachings to a channel that has not been upgraded. The motivation would be the common improvement of increased transmission capacity (col. 6, l. 8), which is an explicit purpose of Swanson's teachings (col. 3, l. 3-7).

(claim 2) Swanson discloses:

The method of claim 1 wherein error correction coding applied to said first signal comprises Reed-Solomon coding (e.g., col. 8, l. 2-9).

(claim 5) Swanson does not expressly disclose:

The method of claim 1 wherein said first data signal comprises an OC-48 signal and said second data signal comprises an OC-192 signal.

Art Unit: 2633

However, such a usage of an OC-48 signal and an OC-192 signal is well within the scope of Swanson's teachings. Simply start with common OC-12 channels and apply Swanson's teachings as described in the obviousness argument presented regarding claim 1 above.

(claim 6) Swanson discloses:

The method of claim 1 further comprising:

multiplexing said first modulated optical signal and said second modulated optical signal together to form said WDM signal (combiner 16 in Fig. 3).

(claim 7) Swanson discloses:

The method of claim 1 wherein said first modulated optical signal and said second modulated optical signal have substantially similar power levels when multiplexed together (Fig. 2C).

(claim 9) A method of receiving a WDM signal, said method comprising:

demodulating a first modulated optical signal derived from said WDM signal to form a first recovered data signal, said first modulated optical signal having a first bandwidth (channel 1 in Fig. 3);

demodulating a second modulated optical signal derived from said WDM signal to form a second recovered data signal (channel 2 in Fig. 3), said second modulated optical signal having a second bandwidth greater than said first bandwidth (example of channels with differing bandwidths in col. 6, l. 11-26); and

decoding (FEC decoder 42) said first and second recovered data signals in accordance with an error correction coding scheme (see the obviousness argument presented in the treatment of claim 1 above) wherein a lower signal to noise ratio of said second modulated optical signal is compensated for relative to said first modulated optical signal (col. 5, l. 19-32; col. 6, l. 11-26).

(claim 10) The method of claim 9 wherein said error correction coding scheme comprises a Reed-Solomon encoding scheme of said first recovered data signal (col. 8, l. 2-9).

(claim 13) Swanson does not expressly disclose:

The method of claim 9 wherein said first recovered data signal comprises an OC-48 signal and said second recovered data signal comprises an OC-192 signal.

Art Unit: 2633

However, such a usage of an OC-48 signal and an OC-192 signal is well within the scope of Swanson's teachings. Simply start with common OC-12 channels and apply Swanson's teachings as described in the obviousness argument presented regarding claim 1 above.

(claim 14) The method of claim 9 wherein said first modulated optical signal and said second modulated optical signal are received with substantially similar power levels (Fig. 2C).

(claims 16, 18, and 20) Claims 16, 18, and 20 introduce limitations that correspond to limitations introduced by claims 1, 2, and 1, respectively. Therefore, the recited limitations in claims 1-2 read on the corresponding limitations in claims 16, 18, and 20.

(claim 21) Swanson discloses:

The WDM transmission system of claim 16 further comprising:

a first amplifier (e.g., amplifier 1 in Fig. 3) that amplifies said first modulated optical signal; and

a second amplifier (e.g., amplifier 2 in Fig. 3) that amplifies said second modulated optical signal,

wherein amplified power levels of said first modulated optical signal and said second modulated optical signals are substantially similar (Fig. 2C).

(claims 22-23) Claims 22 and 23 introduce limitations that correspond to limitations introduced by claims 6 and 5, respectively. Therefore, the recited limitations in claims 5-6 read on the corresponding limitations in claims 22-23.

(claim 24) Swanson discloses:

A WDM receiver system comprising:

a first optical receiver (e.g., o/e converters in Fig. 3) that recovers a first recovered data signal from a first modulated optical signal on a first wavelength (e.g., channel upgraded by a factor of 4);

a second optical receiver (e.g., o/e converters in Fig. 3) that recovers a second recovered data signal from a second modulated optical signal on a second wavelength (e.g., channel upgraded by a factor of 16);

a first error correction decoding block (e.g., decoder 42 in Fig. 3) that decodes said first recovered data signal in accordance with an error correction code (e.g., Reed-Solomon code) imposed on data of said first recovered data signal; and

Art Unit: 2633

a second error correction decoding block (e.g., another instance of decoder 42 in Fig. 3, not shown but obvious by the obviousness argument regarding claim 1 above) that decodes said second recovered data signal in accordance with an error correcting code (a concatenated code of a convolutional code and a block code, with SOVA on the convolutional code) imposed on data of said second recovered data signal, said error correcting code of said second error correction decoding block (see the obviousness argument regarding claim 1 above) compensating for a lower signal to noise ratio of said second modulated optical signal compared to said first modulated optical signal (col. 5, l. 19-32; col. 6, l. 11-26; consider these portions of Swanson in view of the obviousness argument regarding claim 1 above).

(claim 25) Swanson does not expressly disclose:

The WDM receiver system of claim 24 wherein said first recovered data signal comprises an OC-48 signal and said second recovered data signal comprises an OC-192 signal.

However, such a usage of an OC-48 signal and an OC-192 signal is well within the scope of Swanson's teachings. Simply start with common OC-12 channels and apply Swanson's teachings as described in the obviousness argument presented regarding claim 1 above.

(claim 27) Swanson discloses:

The WDM receiver system of claim 24 wherein said second modulated optical signal has a greater bandwidth (e.g., channel upgraded by a factor of 16) than said first modulated optical signal (e.g., channel upgraded by a factor of 4).

(claim 28) Claim 28 introduces limitations that correspond to limitations introduced by claim 10. Therefore, the recited limitations in claim 10 read on the corresponding limitations in claim 28.

(claim 31) Swanson discloses:

The WDM receiver system of claim 24 wherein said first modulated optical signal and said second modulated optical signals are received with substantially similar power levels (Fig. 2C).

(claims 32-33) Claims 32 and 33 introduce limitations that correspond to limitations introduced by claims 1 and 27, respectively. Therefore, the recited limitations in claims 1 and 27 read on the corresponding limitations in claims 32-33.

Art Unit: 2633

12. Claims 3-4, 11-12, 19, and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Swanson in view of the admitted prior art (hereinafter the "APA").

Regarding these claims, Swanson does not expressly disclose these limitations, but the APA shows that these limitations are well known and conventional to apply.

(claim 3) The method of claim 2 wherein said Reed-Solomon coding comprises coding in accordance with the G.975 standard (Applicant's specification, p. 9-10 bridging paragraph).

(claim 4) The method of claim 2 wherein said Reed-Solomon coding comprises coding in accordance with the G.709 standard (Applicant's specification, p. 9-10 bridging paragraph).

(claims 11-12) Claims 11 and 12 introduce limitations that correspond to limitations introduced by claims 3 and 4, respectively. Therefore, the recited steps in method claims 3-4 read on the corresponding steps in method claims 11-12.

(claims 19) Claim 19 introduces limitations that correspond to limitations introduced by claim 3. Therefore, the recited steps in method claim 3 read on the corresponding means in system claim 19.

(claims 29-30) Claims 29 and 30 introduce limitations that correspond to limitations introduced by claims 3 and 4, respectively. Therefore, the recited steps in method claims 3-4 read on the corresponding means in system claims 29-30.

Response to Arguments

13. Applicant's most recent response is an RCE filing on 19 December 2005. However, no further arguments accompanied this RCE filing. Therefore, Examiner here responds to the most recently filed arguments, which were filed on 28 November 2005 with an After Final amendment. Applicant's arguments filed on 28 November 2005 have been fully considered but they are not persuasive. Examiner already provided a response to this most recent set of Applicant's arguments in an Advisory Action, mailed on 07 December 2005. This response is presented again below.

Art Unit: 2633

----- Examiner's response mailed on 07 December 2005, start -----

Applicant's arguments, filed on 28 November 2005, with respect to the claim rejections under 35 U.S.C. 103(a) over Swanson, have been fully considered but are not persuasive. Applicant present two salient points.

Regarding the first point, Applicant states,

"First, the extensive teachings of Swanson et al. cited by the Examiner for upgrading channels work against the Examiner's position. The combinations and permutations of using FEC on channels are numerous. Nonetheless, not even a passing mention is made of the applicants' claimed invention" (filed on 28 November 2005, p. 10, 1st full paragraph).

Examiner does not understand how the number of "combinations and permutations of using FEC on channels" works against Examiner's position. In Examiner's perspective, the fact that "the combinations and permutations of using FEC on channel are numerous" means that there are many possible choices of coding schemes that are available to one of ordinary skill in the art. The wide number of choices allows one of ordinary skill in the art to take advantage of desirable features that are particular to different coding schemes in different transmission situations (e.g., Swanson, col. 7, l. 2-14, 20-25, 34-36, 51-57). It is not clear how the fact that "the combinations and permutations of using FEC on channel are numerous" works against Examiner's argument to "apply error correction coding to multiple data signals such that said one data signal experiences a greater coding gain than another data signal", especially when explicit purposes of Swanson's teachings include the upgrading of channels (Swanson, col. 3, l. 3-7, col. 6, l. 8) by applying these various error correction coding schemes (col. 7, l. 1 - col. 8, l. 21). Also, although a "passing mention" of Applicant's claimed invention is not made by Swanson, this observation is already implied by the fact that Swanson was applied in an obviousness rejection under 35 U.S.C. 103. Accordingly, Applicant's first point is not persuasive.

Regarding the second point, Applicant states,

"Secondly, the repeated cautionary language in the Swanson patent suggest that the Examiner is perhaps hasty in assuming what a person of ordinary skill in the art would be motivated to do or perhaps reflects impermissible hindsight of the applicants' invention. For example, immediately after the portion (col. 8, ll. 2-9) cited by the Examiner for upgrading a channel, Swanson et al. warn, 'However, other considerations come into play when a channel at rate R' which originally designed for rate R. Of particular concern are chromatic dispersion and polarization mode dispersion. The effects of dispersion in optical systems become more pronounced...' (filed on 28 November 2005, p. 10, 1st full paragraph).

Art Unit: 2633

Examiner respectfully notes that this portion cited by Applicant also teaches a portion of Examiner's argument. That is, even though Applicant points out the warning nature of this portion of Swanson et al., this same portion concludes by suggesting a particular coding scheme to employ in an upgrading process, "Thus, in this situation, a concatenated convolutional and block code may be appropriate" (Swanson, col. 8, l. 17-18). That is, although Applicant may feel that Swanson et al. cautions against cavalier application of any coding teachings without consideration of effects such as chromatic dispersion and polarization mode dispersion, Swanson et al., nonetheless, teaches a particular coding scheme (i.e., concatenated convolutional and block code) that would be suitable in consideration of these effects. Coincidentally, Examiner's standing rejections rely on this same particular coding scheme (i.e., concatenated convolutional and block code as referenced through Swanson, col. 7, l. 34-50 on p. 5 of the Office Action mailed on 21 September 2005). Thus, although Examiner appreciates Applicant's concern and attention to the cautionary language in the Swanson patent, Examiner respectfully maintains that the standing rejections do rely on positive teachings and suggestions from Swanson so that the argument presented therein falls within the scope of what a person of ordinary skill in the art would have been reasonably motivated to do without impermissible hindsight of Applicant's invention. Accordingly, Applicant's second point is not persuasive.

Summarily, Applicant's arguments are not persuasive. Accordingly, Examiner respectfully maintains the standing rejections.

----- Examiner's response mailed on 07 December 2005, end -----

Since Applicant did not rebut Examiner's response mailed on 07 December 2005, Examiner respectfully maintains the position that Applicant's arguments are not persuasive. Additionally, the After Final amendment filed by Applicant on 28 November 2005 was entered with the RCE filing by Applicant on 19 December 2005. Accordingly, the present Office Action addresses all the new issues raised by the entry of this most recent amendment.

Art Unit: 2633


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Kim whose telephone number is 571-272-3033. The examiner can normally be reached on Mon.-Fri. 9 AM to 5 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DSK


JASON CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600